

## Study Guide

Student Edition  
Pages 262–269**Relations**

A **relation** is a set of ordered pairs. The **domain** of a relation is the set of all first coordinates of the ordered pairs, and the **range** is the set of all second coordinates.

**Example 1:** State the domain and range of each relation.

1.  $\{(3, 3), (3, 4), (3, 5)\}$  Domain =  $\{3\}$ ; Range =  $\{3, 4, 5\}$

2.  $\{(1, 2), (2, 1), (3, 2)\}$  Domain =  $\{1, 2, 3\}$ ; Range =  $\{1, 2\}$

Relations may be expressed in the form of ordered pairs, tables, graphs, and mappings.

**Example 2:** The relation  $\{(1, 1), (0, 2), (3, -2)\}$  can be expressed in each of the following ways.

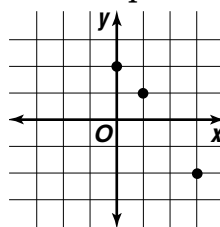
Ordered pairs

$(1, 1)$   
 $(0, 2)$   
 $(3, -2)$

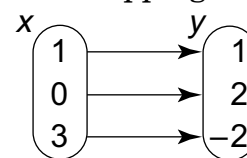
Table

x	y
1	1
0	2
3	-2

Graph



Mapping



The **inverse** of any relation is obtained by switching the coordinates in each ordered pair.

**State the domain and range of each relation.**

1.  $\{(-6, 5), (-3, 8), (-6, 9), (3, 11)\}$

2.  $\{(0.8, -0.8), (1.2, 0), (3.5, 4)\}$

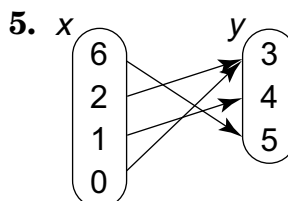
3.  $\left\{\left(\frac{1}{2}, \frac{1}{4}\right), \left(1\frac{1}{2}, 1\frac{1}{4}\right), \left(3\frac{1}{2}, 2\right)\right\}$

**Express the relations shown in each table, mapping, or graph as a set of ordered pairs. Then state the domain, range, and inverse of the relation.**

4.

x	y
1	3
2	4
3	6

5.



**Draw a mapping and graph for each relation.**

6.  $\{(-2, -1), (3, 3), (4, 3)\}$

7.  $\{(0, 0), (1, 1), (2, 2)\}$

## Practice

Student Edition  
Pages 262–269**Relations****State the domain and range of each relation.**

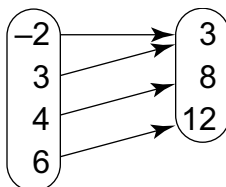
- $\{(1, 1), (2, 2), (3, 1), (3, 2), (4, 1), (4, 2)\}$
- $\left\{\left(-6\frac{1}{4}, -6\frac{1}{4}\right), \left(-6\frac{1}{4}, -\frac{1}{2}\right), \left(5, 3\frac{1}{2}\right), \left(5, -\frac{1}{2}\right)\right\}$
- $\{(1.1, -2), (2.3, 0), (4.8, 1.1), (33, 2.3)\}$

**Express the relation shown in each table, mapping, or graph as a set of ordered pairs. Then state the domain, range, and inverse of the relation.**

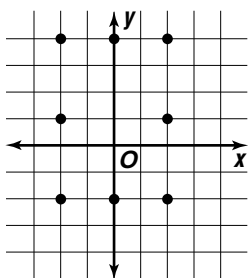
4.

x	y
1	1
2	1
3	1

5.



6.



7. Cost of Admission to Water World

Number of people	1	2	3	4
Cost (Dollars)	28	50	80	100

**Draw a mapping and a graph for each relation.**

- $\left\{\left(\frac{1}{2}, \frac{1}{4}\right), \left(0, \frac{1}{2}\right), \left(2\frac{1}{2}, 3\right)\right\}$
- $\{(0, 2), (2, 0), (2, 1), (2, 2)\}$
- $\{(-2, 1), (-2, 2), (1, 1), (2, 1)\}$

